

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-10 cancelled.

11. (New) A method for transmitting data for real-time applications and non-real-time applications in a communications network with several nodes that are connected to one another via communication paths,

wherein the data transmission takes place in a cyclic and deterministic fashion and data for real-time applications has priority over other data such that all data for real-time applications is transmitted first during a transmission cycle and data for non-real-time applications is subsequently transmitted in the time that remains until the next transmission cycle starts, the method comprising the steps of:

transmitting, receiving and processing data for real-time applications and data for non-real-time applications in parallel during a real-time cycle by:

executing a first processing step wherein, in a real-time cycle, the data received in a previous real-time cycle is analyzed to determine which received data are intended for real-time applications and which data are intended for non-real-time applications;

executing a second processing step including executing the real-time applications; and

executing a third processing step including the transmission of the data to be transmitted for real-time applications during a transmission cycle.

12. (New) The method according to Claim 11, wherein the third processing step comprises transmission of data for real-time applications in its entirety during the transmission cycle, and wherein the third processing step further comprises calculating the time remaining until the next transmission cycle starts, in order to subsequently transmit data for non-real-time applications in the remaining time.

13. (New) The method according to Claim 12, wherein the data is transmitted in the form of data packets, and wherein the third processing step further comprises:

storing the data packet in the interim; and

transmitting the data packet preferentially during the next transmission cycle, when the time remaining after the transmission of data for real-time applications exceeds the transmission time required to transmit a data packet for real-time applications.

14. (New) The method according to Claim 13, wherein data received for non-real-time applications is processed independently of data received for real-time applications.

15. (New) The method according to Claim 11, wherein data received for non-real-time applications is processed independently of data received for real-time applications.

16. (New) The method according to Claim 11, wherein the duration of the transmission and reception cycles corresponds to that of the real-time cycle, and wherein the transmission cycle is delayed relative to the reception cycle by a constant period of time that corresponds to the period of time for the first and the second processing step.

17. (New) The method according to Claim 16, wherein the reception cycle is started simultaneously with or shortly after the start of the real-time cycle.

18. (New) A node configured to carry out the parallel transmission, reception and processing of data for real-time applications and data for non-real-time applications, the node comprising:

an interface unit connecting the node to a communications network including several nodes connected to one another via a communications path, the interface unit configured to cyclically and deterministically transmit data between the node and the communications network in order to handle data for real-time applications with priority over data for non-real-time applications, such that all data for real-time applications is transmitted first during a transmission cycle and data for non-real-time applications is subsequently transmitted in the time that remains until the next transmission cycle starts; and

a processing unit (CPU) operatively coupled to the interface unit, wherein the processing unit:

evaluates the data received in the respectively preceding real-time cycle in a first processing step of a real-time cycle in order to determine the received data intended for real-time applications and the received data intended for non-real-time applications;

executes the real-time applications in a second processing step; and

transfers the data to be transmitted for real-time applications to the interface unit for actual data transmission in a third processing step.

19. (New) The node according to Claim 18, wherein the interface unit transmits data for real-time applications in its entirety during a transmission cycle and calculates the time remaining until the next transmission cycle in order to transmit data from non-real-time applications in the remaining time.

20. (New) The node according to Claim 19, wherein the data is transmitted in the form of data packets, and wherein the interface unit includes a buffer that stores the data packet in the interim if the time remaining after the transmission of data for real-time applications is exceeded by the transmission time required to transmit a data packet for non-real-time applications, with the data packet preferentially transmitted during the next transmission cycle.

21. (New) The node according to Claim 20, wherein the processing unit processes the received data for real-time applications and the received data for non-real-time applications independently of one another.

22. (New) The node according to Claim 18, wherein the processing unit processes the received data for real-time applications and the received data for non-real-time applications independently of one another.

23. (New) The node according to Claim 18, wherein the data is transmitted in the form of data packets, and wherein the interface unit includes a buffer that stores the data packet in the interim if the time remaining after the transmission of data for real-time applications is exceeded by the transmission time required to transmit a data packet for

non-real-time applications, with the data packet preferentially transmitted during the next transmission cycle.